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Thomas Bechtold

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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS BECHTOLD,
WOLFGANG SCHROTT,
THORSTEN HULS,
MARC-STEFFEN MUCHE,
and BERTRAM WENDT

Appeal 2008-5192
Application 10/521,917
Technology Center 1700

Decided: September 29, 2008

Before CHUNG K. PAK, PETER F. KRATZ, and JEFFREY T. SMITH,
Administrative Patent Judges.

PAK, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1 through 17, all of the pending claims in the above-identified application. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM.

STATEMENT OF THE CASE

The subject matter on appeal is directed to a process for dyeing fiber materials with sulfur dyes and sulfur vat dyes which are known to be susceptible to unwanted oxidation (Spec. 1-5). Details of the appealed subject matter are recited in representative claims 1 and 6 reproduced below¹:

1. A process for dyeing fiber materials with sulfur dyes by regenerating the dyebath redox potential, which comprises, during the dyeing process, the dyeing liquor being circulated between the dyeing apparatus and an attached electrolytic cell and the sulfur dye which has been unwantedly oxidized in the dyebath being cathodically reduced in the electrolytic cell.

6. A process as claimed in claim 1, conducted at a temperature in the range of 20 to 135°C.

As evidence of obviousness of the appealed subject matter, the Examiner has proffered the following prior art references:

Carlough	US 5,873,912	Feb. 23, 1999
Bechtold	WO 99/11716	Mar. 11, 1999 ²

¹ Appellants have presented substantive arguments for patentability of claims 1 and 6 (App. Br. 5-12 and Reply Br. 5-15). Therefore, for purposes of this appeal, we select claims 1 and 6 to decide the propriety of the grounds of rejection set forth in the Answer based on these representative claims consistent with 37 C.F.R. § 41.37(c)(1) (vii) (2005).

² Appellants have not objected to the Examiner's reliance on U.S. Patent 6,312,583 B1 (derived from WO 99/11716) issued to Bechtold et al. on Nov. 6, 2001 as the English translation of WO 99/11716. *See* Brief in its entirety. Accordingly, our reference to WO 99/11716 is to U.S. Patent 6,312,583 B1 issued to Bechtold et al (hereinafter referred to as "Bechtold")

As evidence of non-obviousness of the appealed subject matter, Appellants have proffered the following evidence:

Bechtold '763 US 6,814,763 B2 Nov. 9, 2004³

The Examiner has rejected the claims on appeal as follows:

- 1) Claims 1 through 6, 8 through 12, 16, and 17 under 35 U.S.C. § 103(a) as unpatentable over the disclosure of Bechtold; and
- 2) Claims 6 through 8 and 13 through 15 under 35 U.S.C. § 103(a) as unpatentable over the disclosure of Bechtold and Carlough.

Appellants appeal from the Examiner's decision rejecting the claims on appeal under 35 U.S.C. § 103(a).

RELEVANT FACTUAL FINDINGS (FF)

1. Bechtold discusses dying fiber materials with sulphur dyes (col. 1, ll. 10-18).
2. Bechtold teaches that these sulphur dyes are reduced and need to be protected from unwanted oxidation by air (col. 1, ll. 12-29).
3. Bechtold teaches that "[s]ome improvement is obtained with the process according to DE-OS 1 906 083, which recommends dye reduction with the aid of cathodic reduction in aqueous solution at current densities between 5 mA.cm⁻² and 50 mA.cm⁻²" (col. 1, ll. 30-33).

³ Bechtold '763 is derived from WO 01/65000 published on September 7, 2001. (See the cover page of Bechtold '763). According to Appellants, Bechtold '763 is the English counterpart of WO 01/65000 (Br. 7).

4. Bechtold teaches (col. 1, ll. 60-66) that:

The invention thus relates to a process for reduction of sulphur dyes to an analytically determinable concentration of at least 150 Ah.kg^{-1} of reduction equivalents in the solution, in relation to the solid dye, wherein at least 50 Ah.kg^{-1} can be introduced by cathodic reduction. The process has a current density of between 0.5 mA cm^{-2} and 5 mA.cm^{-2} .

5. Bechtold teaches cathodically reducing sulfur dyes and pre-reduced sulfur dye (col. 3, ll. 22-25).
6. Bechtold illustrates a dyeing apparatus comprising an electrolytic cell with a cation exchange membrane for separating the anolyte and the catholyte and a catholyte reservoir in which the dyeing takes place (Fig. 1, together with col. 2, ll. 30-50).
7. Bechtold teaches that the he catholyte is reduced by the circulation flow in the circuit 9" (col. 2, ll. 44-45 and Fig. 1).
8. Bechtold exemplifies reducing Sulfur black 1 in an alkaline solution comprising NaOH as the anolyte at a temperature of 40 to 50° C. (col. 2, ll. 50-63).
9. Carlough teaches dyeing cellulosic fibrous materials with 0.5-10 g/l of dyes, such as Sulfur black 1 at a temperature of 35 to 130° C. (col. 2, ll. 1-10, col. 3, ll. 19-21, col. 4, ll. 62-65, and col. 5, ll. 47-48).
10. Carlough teaches dyeing cellulosic fibrous materials under an inert atmosphere to further prevent unwanted oxidation of the dye (col. 6, ll. 17-48).

PRINCIPLES OF LAW

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations, if any. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). “[A]nalysis [of whether the subject matter of a claim would have been prima facie obvious] need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co., v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-41 (2007); *see also DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006) (“The motivation need not be found in the references sought to be combined, but may be found in any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself . . .”).

“[W]here the prior art gives reason or motivation to make the claimed [invention] . . . the burden (and opportunity) then falls on an applicant to rebut that prima facie case. Such rebuttal or argument can consist of . . . any other argument or presentation of evidence that is pertinent.” *In re Dillon*, 919 F.2d 688, 692-93 (Fed. Cir. 1990) (*en banc*). Appellants’ mere arguments in the Brief or conclusory statements in the Specification regarding factual matters not supported by objective evidence are not sufficient. *See, e.g., In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *In re Lindner*, 457 F.2d 506, 508 (CCPA 1972).

ANALYSES AND ISSUES

Bechtold does not exemplify dyeing fibrous materials in its dyeing apparatus illustrated in Figure 1 (FF 7). However, as correctly found by the Examiner (Ans. 3-6), Bechtold, as a whole, teaches or would have suggested employing its catholyte reservoir for dyeing fibrous materials with the catholyte (dye) circulated from the catholyte reservoir to an attached electrolytic cell which is used to cathodically reduce the dye and return the catholyte (reduced dye) to the catholyte reservoir (*see also* FF 1-7). It follows that the Examiner has established a prima facie case of obviousness regarding the subject matter defined by claims 1 through 6, 8 through 12, 16, and 17 within the meaning of 35 U.S.C. § 103(a).

As a rebuttal to the Examiner's prima facie case, Appellants rely on U.S. Patent 6,814,763 to show that Bechtold reduces its dye with a metal ion which is regenerated cathodically in an electrolytic cell (App. Br. 7). In other words, Bechtold does not teach or suggest cathodically reducing its dye with the attached electrolytic cell as required by claim 1 on appeal (*id.*).

Therefore, the dispositive question is: Have Appellants demonstrated that Bechtold relied upon by the Examiner does not teach reducing its dye cathodically with the attached electrolytic cell? On this record, we answer this question in the negative.

As correctly found by the Examiner (Ans. 5), U.S. Patent 6,814,763 does not indicate that Bechtold itself employs metal ions for the purpose of reducing its dyes. In fact, as pointed out by the Examiner at page 5 of the

Answer, Bechtold specifically teaches cathodically reducing its dyes (FF 4-5).

Accordingly, based on the totality of record relied upon by the Examiner and Appellants, including due consideration of Appellants' arguments in the Appeal Brief, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claims 1 through 6, 8 through 12, 16, and 17 within the meaning of 35 U.S.C. § 103 (a).

As to claims 6 through 8 and 13 through 15, Appellants contend that one of ordinary skill in the art would not have been led to employ the dying temperature and inert atmosphere taught by Carlough in the dyeing process of Bechtold (Br. 8-9). We do not agree for the reason well articulated by the Examiner in the Answer. We add the following for emphasis and completeness.

Although Bechtold does not specifically mention dyeing its fibrous material at a temperature of 60-95° C. under an inert atmosphere, Carlough teaches that such temperature is conventional in dyeing fibrous materials with the same dye taught by Bechtold (FF 8-10). Moreover, Carlough teaches that the inert atmosphere further protects the dye from unwanted oxidation (FF 10). Nothing in Bechtold suggests that the inert atmosphere in its catholyte reservoir would not enhance the protection against unwanted oxidation of dyes (FF 2-5).

Given the above teachings, we concur with the Examiner that one of ordinary skill in the art would have been led to employ conventional dyeing temperatures, such as those claimed, under inert atmosphere, motivated a

reasonable expectation of successfully dyeing fibrous materials with reduced unwanted oxidation of sulfur dyes in Bechtold's fibrous material dyeing process.

Accordingly, based on the totality of record relied upon by the Examiner and Appellants, we determine that the preponderance of evidence weighs most heavily in favor of obviousness of the subject matter recited in claims 6 through 8 and 13 through 15 within the meaning of 35 U.S.C. § 103 (a).

ORDER

In view of the foregoing, the decision of the Examiner is affirmed.

TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899